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Recommended procedures for

CONTROL

OF THE SOUTHERN PINE BEETLE

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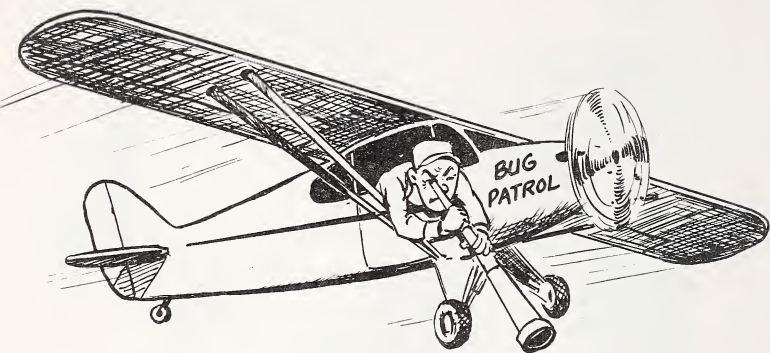
INTRODUCTION

If control of the southern pine beetle is to be effective, land-managing agencies must take the fire fighting attitude of hitting it quickly and hitting it hard. Prompt salvage and adequate chemical control can do the job. If beetle activity picks up in late summer, as frequently happens, salvage and treatment must likewise increase in order to hold previous gains and prevent pyramiding timber losses. Keep your control efforts flexible.

Some of the do's and don't's to help you field men improve upon control of the southern pine beetle are briefly summarized in the following pages.

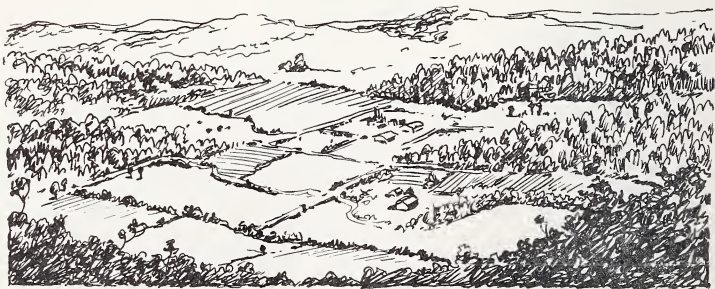
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AERIAL SCOUTING

Since the beetles are capable of rapid increase and spread, aerial scouting is the most effective way to locate new bug spots and to look for re-attacks following previous salvage or chemical treatment. Knowledge of infestation conditions obtained from aerial observation also aids planning, in that it shows the size of the control job needed and where crews should be sent.



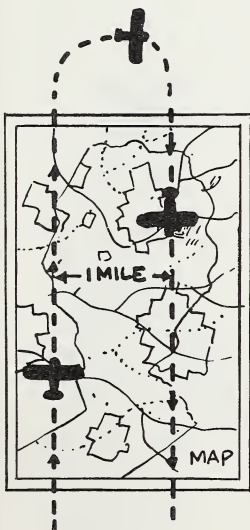
SOME DO'S AND DON'T'S IN AERIAL SCOUTING:



DO—Fly the control area every 3 weeks between May and September. From October through April, flights should be made as often as needed to help control crews locate spots and to check on the over-all infestation.

DO—Try to use aerial photographs, photo mosaics, or topographic maps when mapping infested trees. County highway maps with $\frac{1}{2}$ inch to 1 mile scale are too small for mapping single trees and small groups.

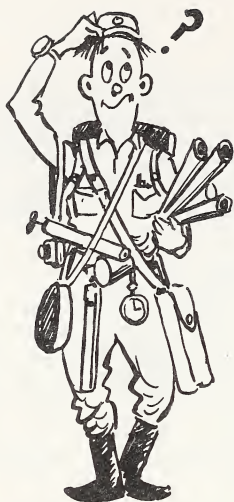
DO—Map all fading pine and full-crowned red tops, both **groups** and **single trees**.



DO—Map all infested trees within the control area regardless of land ownership.

DO—Mark out proposed flight lines on the map before each flight. Try to keep elevation changes to a minimum on any given flight line.

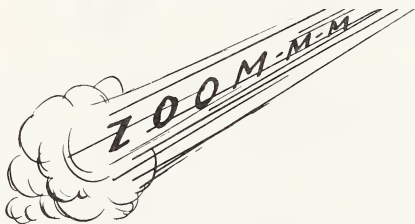
DO—Let the pilot know what you're trying to accomplish and how you want him to fly the area.



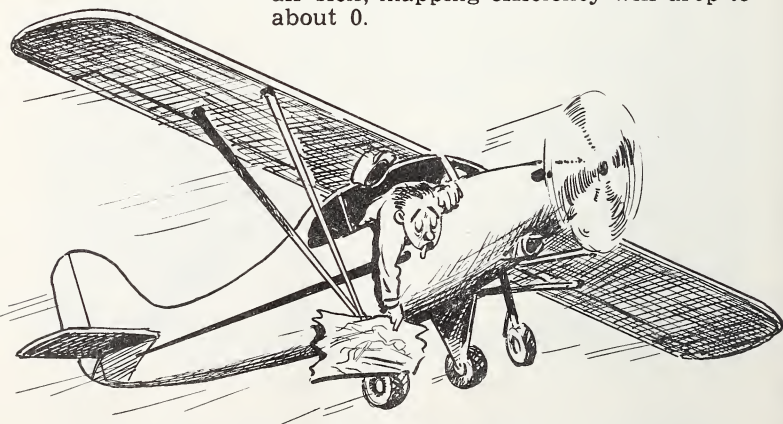
DON'T—Send inexperienced men to do the aerial scouting. Tests have shown that they see only about 20 percent of the infested trees.



DON'T—Attempt aerial mapping from a low-wing plane. Don't travel faster than 90 mph or fly higher than 1,000 feet above the ground.

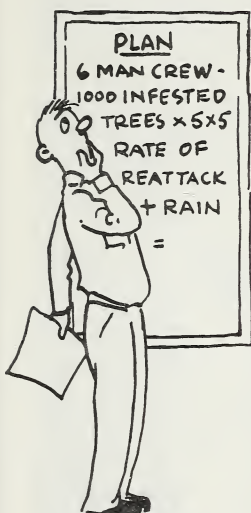


DON'T—Continue to map if you become air-sick; mapping efficiency will drop to about 0.



CONTROL PLANNING

When aerial survey data have been obtained, a control plan should be drawn up. In drawing up a good control plan:



DO—Outline priority of control units on the basis of severity of infestations and values at stake.

DO—Make sure the control areas are large enough so that over-all re-attack is unlikely.

DO—Plan to continue control practices until the epidemic is reduced to an endemic level.

DO—Provide for adequate mopup and resurvey before scheduling additional units for control.

DO—Between May and September, plan to treat all known infested trees and to complete mopup in a 5-week period. During the cooler months, namely October to February, the treating period can be extended to 3 months after the first attack of the beetles.



DON'T—Expand your control plan so vigorously that you run out of funds before the beetles have been reduced to a maintenance control level.

DON'T—Treat first one end and then the other end of the forest, or just along roadsides. Instead, proceed in a logical manner, providing for rechecks and mopup as you go.

GROUND SCOUTING

When the infested trees have been located and mapped from the air and the control plan has been drawn up, it will then be necessary to locate the trees on the ground and find the best way to them. This is the job of ground scouting, and it will be much easier if single trees and small groups have been plotted on large-scale aerial photographs.



**BLAZE THE TRAIL CLEARLY — DON'T
LET THIS HAPPEN TO YOU!**

SOME DO'S AND DON'T'S IN GROUND SCOUTING



DO—Locate infested trees and clearly mark the route to them before the treating crew moves in.

DO—Examine enough trees of each different crown color and condition to tell which trees must be treated.

DO—Blaze the trees to be treated both faders and green and count them so the treating crew will know how much spray material to carry in.

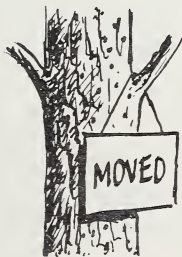


DO—Mark for treating all green trees that have reddish pitch tubes, boring dust, or blue-stained wood.

DO—Look carefully at the upper sections of nearby green trees for pitch tubes or other signs of beetle attack. Use binoculars if available.

DO—Examine green trees for about 100 feet around groups of infested trees for signs of beetle attack.

DO—Be on the alert for infested trees that were damaged during road construction or logging operations.



DON'T—Mark for treatment trees from which the beetles have already flown.

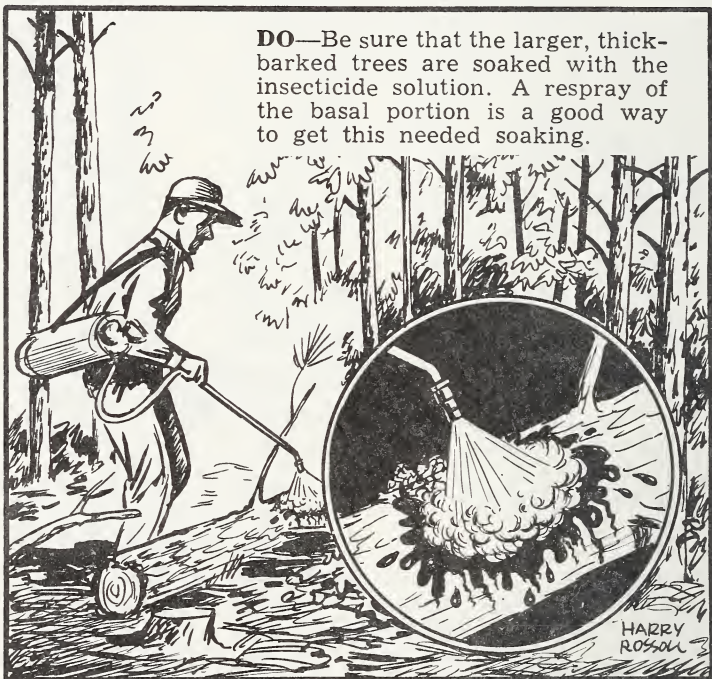
DON'T—Scout too far ahead of the treating crews, especially in the warmer summer months. If beetles leave marked trees or make new attacks, the picture will be completely changed when the treating crew arrives.

CHEMICAL TREATING

Benzene hexachloride (BHC) in No. 2 fuel oil will kill the southern pine beetle when properly applied to infested trees. BHC kills the beetles by fumigation when it soaks through the bark and in through the entrance holes. Beetles are also killed by BHC when they chew their way out of the bark. Because the beetles do not develop rapidly in the winter, the insecticide must last several months. Therefore, from November 1 to March 31, the proper spray should be 2 gals. of 11-percent gamma BHC concentrate in 50 gals. of oil. From April 1 to October 31, you should use 1 gal. of 11-percent BHC concentrate in 50 gals. of oil. Keep in mind that if you get **enough** BHC on the tree and get it on all of the infested bark, you will kill the beetles.

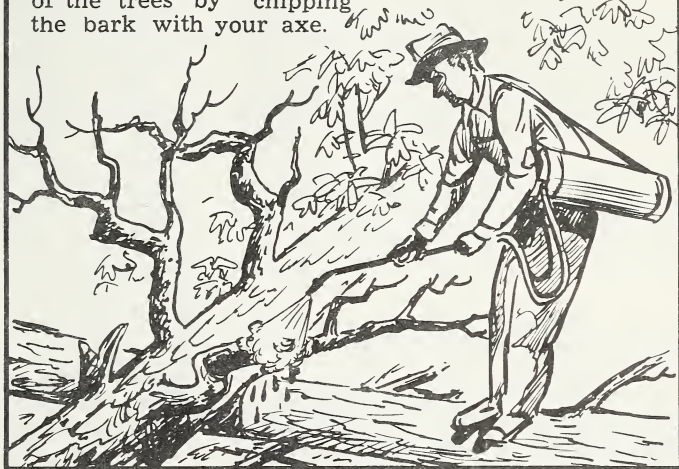
SOME DO'S AND DON'T'S IN CHEMICAL TREATING

DO—Be sure that the larger, thick-barked trees are soaked with the insecticide solution. A respray of the basal portion is a good way to get this needed soaking.

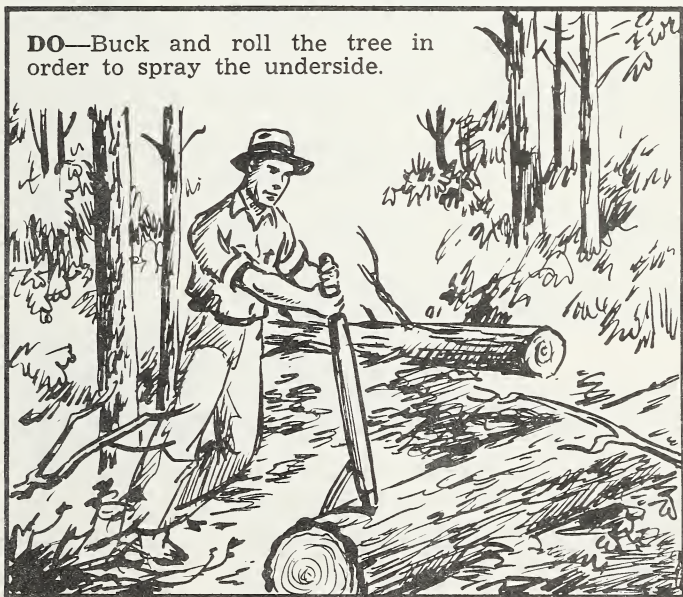


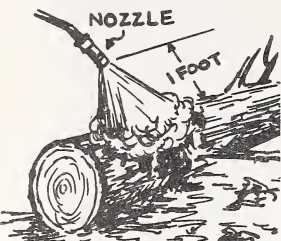
**APPLY THE INSECTICIDE TO ALL INFESTED TREES
UNTIL IT BEGINS TO RUN OFF**

DO—Make sure that no infested parts of the larger limbs and tops are missed during the treatment. Check the doubtful portion of the trees by chipping the bark with your axe.



DO—Buck and roll the tree in order to spray the underside.





DO — Completely and systematically spray felled trees over all of the infested length. Start at the **stump** and work toward the top. Hold the end of the spray nozzle about **1 foot** from the **bark surface**.

DO—Spray the bark flakes around the bases of trees which have been heavily woodpeckered.

DO—Keep plenty of neoprene washers and extra spray-can parts on hand.

DO—Treat single trees when practical.

DO—Release pressure slowly when opening spray-can covers.

DO—Keep control maps and records showing progress, trees per spot, date treated, date rechecked, date retreated, gallons of insecticide used, average d.b.h., and size of crew.



DON'T—Spray when trees look wet or within 12 hours after steady rain which has soaked the bark.

DON'T—Spray infested tops or limbs less than 2 inches in diameter.

DON'T—Stand too far from the felled tree or attempt to cover most of the stem from one position. Treat the main stem as you move along the tree.

DON'T—Stand opposite another treater while spraying the same tree. If it is necessary for two men to treat the same tree, start at opposite ends and permit only one man to complete the mid-stem section.



DON'T—CHANGE THE METHOD OF TREATING WITHOUT FIRST CONSULTING THE ENTOMOLOGIST FROM THE EXPERIMENT STATION.

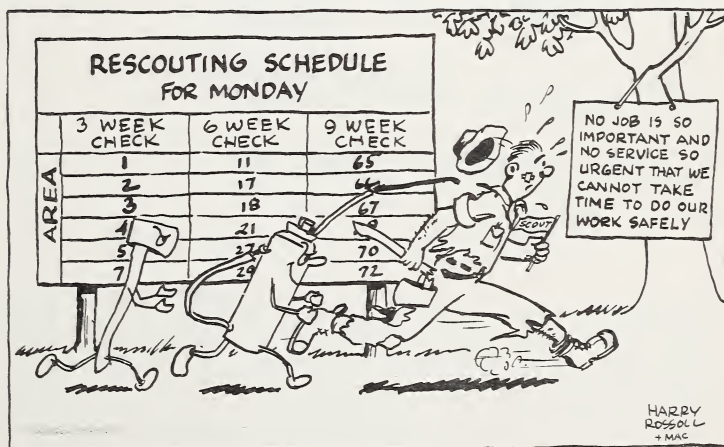
POST-TREATMENT INSPECTION

On all southern pine beetle control projects, it will pay to have one or more men as needed assigned specifically to post-treatment checkups. Remember, it is more economical to keep a close check on sprayed areas than to return to an area after a long interval and have to treat as many trees as were treated originally, or perhaps even more.

SOME DO'S IN POST-TREATMENT INSPECTION:

DO—Make a careful final inspection of each bug spot when you complete treating it. The whole crew should take part in looking to see if any trees were missed.

DO—From April 1 to October 31, re-scout each treated spot 3 weeks, 6 weeks, and 9 weeks after treatment. From November 1 to March 31 recheck treated spots every two months. If no reinfested trees are found at the end of three scheduled rechecks, the spot need not be re-examined. Use the airplane wherever practical.



SALVAGE LOGGING

Salvage logging of beetle-infested trees is an effective method of controlling the southern pine beetle only where numerous small sales are possible and logs or pulpwood can be removed while the beetles are still under the bark. Beetle development is so rapid during the summer that infested trees must be cut and removed within 5 weeks of initial beetle attack.

SOME DO'S IN SALVAGE LOGGING:

DO—Place a high priority on the cutting and removal of infested trees first.

DO—Spray infested tops and stumps in saw-log operations.

DO—Make adequate rechecks of the sale area to prevent build-up of residual beetle populations.

**THERE ARE TWO FINAL WORDS TO SAY IN
CONNECTION WITH BEETLE CONTROL:**

Work

Safely

